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A STUDY OF
GENERAL AVIATION
IN THE MONTREAL AREA

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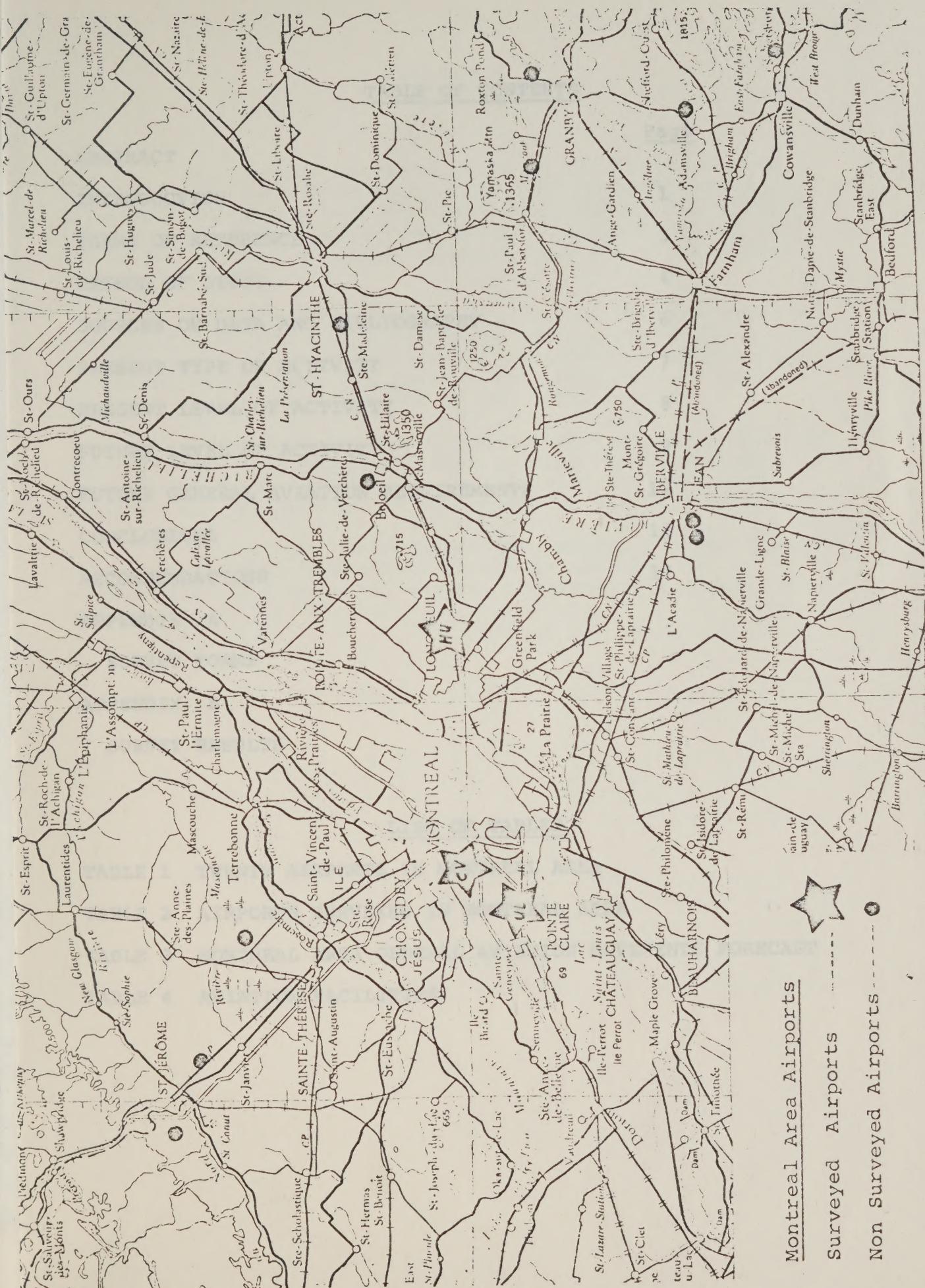


A STUDY OF
GENERAL AVIATION
IN THE MONTREAL AREA

S-69-1

PREPARED BY
AVIATION PLANNING AND RESEARCH DIVISION
CIVIL AVIATION BRANCH

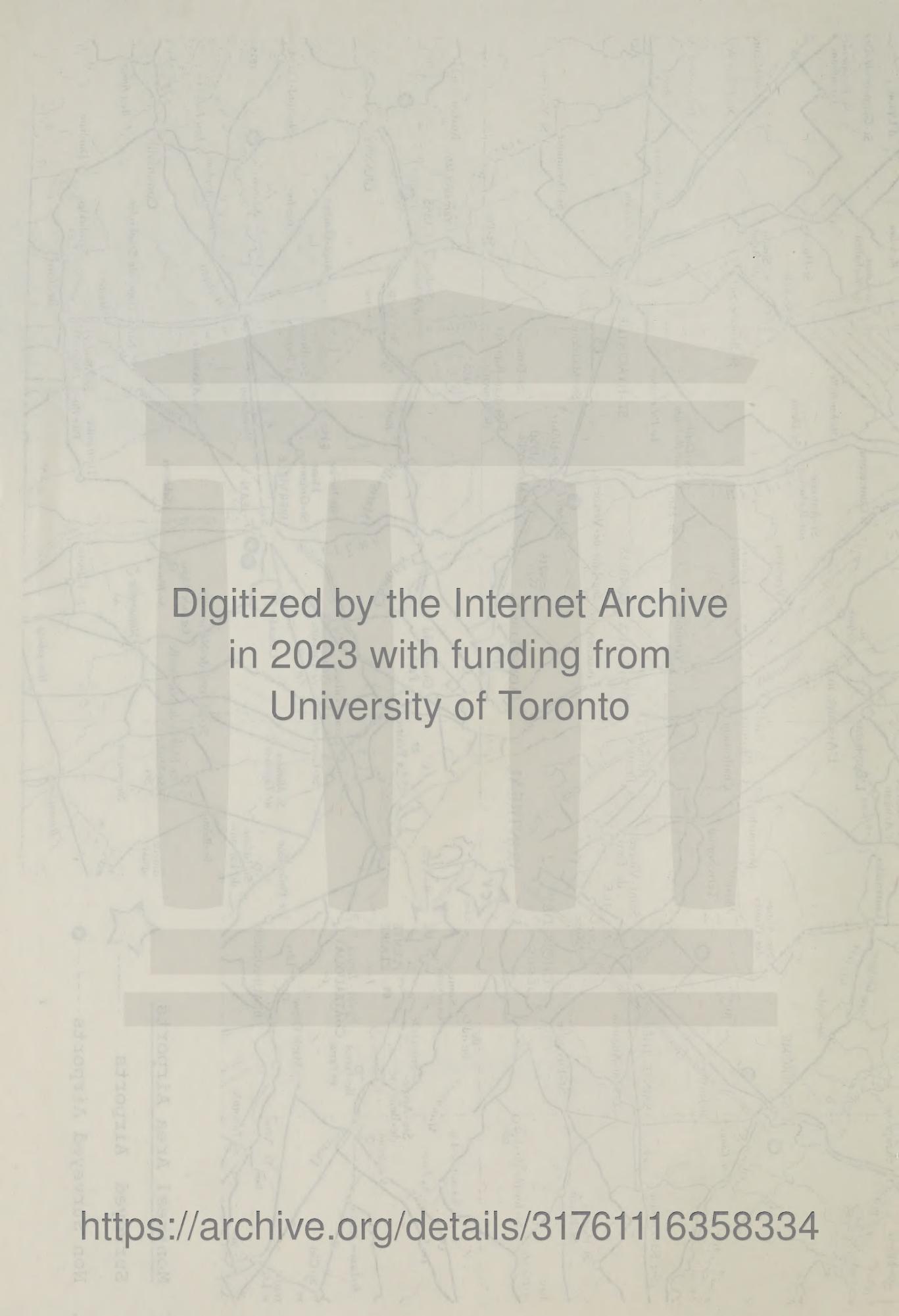
JULY 1969



Montreal Area Airports

Surveyed Airports

Non Surveyed Airports - - - - -



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ABSTRACT

The general aviation study in the Montreal area which was carried out in early June 1969 covered twenty airports. The three airports which were surveyed, Montreal International, St. Hubert, and Cartierville, accounted for 83% of the general aviation movements and 47% of the based aircraft in 1968.

An analysis of the traffic in the Montreal area indicated that 87% of the movements were generated by general aviation activity. General aviation is expected to double in the next ten years. The percentage of general aviation will increase to 90% of the total traffic.

At present the per capita general aviation aircraft movements are less than half that in other major centers in Canada. Three quarters of the surveyed arrivals were pleasure and training while the remainder was business.

With proper development the present general aviation airports surrounding Montreal should be adequate to accommodate the forecasted general aviation growth over the next ten years.

The various activity groupings were defined as follows:

1. Business flying is the use of personal, corporate or chartered aircraft either directly for some business purpose or as a substitute for air carrier transportation to or from a place where business will be transacted.
2. Charter operations include transportation of passengers and cargo for hire. Whether conducted on a scheduled basis or as small group pre-set charters, these movements are essentially supplemental to air carrier operations. In the United States this grouping is usually referred to as air taxi.

INTRODUCTION

This study was carried out to provide information on general aviation activities at Montreal International Airport and other airports in the Montreal area. The information will be used as an input in planning the development of aviation facilities in the area.

Airports and airstrips which were considered to be in the Montreal area included those in the Laurentian Mts. and Eastern Townships as well as the Metropolitan Montreal area.

The term "general aviation" as used in this report includes all civil flying except that performed by major scheduled air carriers operating large aircraft on scheduled service.

General aviation flying embraces a multitude of diverse uses of aircraft. In this report these activities have been divided into five major categories: charter operations, business flying, (corporate, private, or government), training or instructional flying, pleasure flying, and aerial work (crop-dusting, pipe-line patrol, timber cruising, etc.).

The various activity groupings were defined as follows:

1. Business flying is the use of personal, corporate or chartered aircraft either directly for some business purpose or as a substitute for air carrier transportation to or from a place where business will be transacted.
2. Charter operations include transportation of passengers and cargo for hire. Whether conducted on a schedule basis or as small group pro rate charters, these movements are essentially supplemental to air carrier operations. In the United States this grouping is usually referred to as air taxi.

3. Pleasure flying includes transportation in personally owned or rented aircraft for recreational purposes, such as air touring and other vacation trips.
4. Training flying includes those flights whose primary purpose is instructional or practice and not transportation from place to place. This category constitutes primarily flights which are classified as local in tower counts.
5. Aerial Work consists primarily of non-transport operations and includes such activities as survey, search and rescue, police patrol, news coverage, aerial application, fire fighting, and supply to offshore and other remote locations.

In the general aviation study, a local movement is defined as a movement in which the aircraft has not landed or does not intend to land at another airport or land or water aerodrome. An itinerant movement is a movement made by an aircraft which has taken off from or is intending to land at another airport or aerodrome.

Also in the general aviation study an arrival is defined as a movement in which the airplane lands, shuts down, and the pilot disembarks.

TERMS OF REFERENCE

Conduct a study in the Montreal Area to:

1. Determine type and level of general aviation activity.
2. Classify present general aviation airports.
3. Determine facility and airport requirements for future general aviation activities.
4. Identify most suitable areas for development of new general aviation facilities.

METHOD OF STUDY

A. General Aviation Airport
Population of the
Montreal Area

There are twenty general aviation airports in the Montreal area, eight of which reported movement figures in 1968. More than half of the total movements reported occurred at Cartierville, (TABLE 1).

Four of these airports are owned by the Department of Transport, two by municipalities and the remaining fourteen are privately owned. The four Department of Transport airports all have public licences, paved runways, and close to fifty based aircraft. None of the others have more than sixteen based aircraft.

Of the total, four airstrips are unlicensed, five are privately licenced, and the remaining eleven have public licences, including the two municipally owned airstrips.

B. Choice of Sample

Three of the four Department of Transport airports were chosen to be surveyed: Cartierville, Montreal International, and St. Hubert. Although St. Hubert was open to general aviation activity during only two months of 1968, in January and February of 1969 it reported over 21,000 movements.

St. Jean, the fourth airport, was not surveyed as a preliminary visit showed a lower number of airworthy based aircraft than expected, and an extremely low level of activity.

Nevertheless, the combined movements at the four airports accounted for 86% of the general aviation activity in the area in 1968. Based aircraft at these four comprised 66% of the total.

TABLE I

Airport	Reported Movements	Estimated Movements	Based A/C	License	Ownership	Runway Surface	Lighting	Customs
---------	--------------------	---------------------	-----------	---------	-----------	----------------	----------	---------

Beloeil	11,542	14	private	private	gravel and turf	on request	no
Bromont			public	Mun.	paved	yes	no
Cartierville	313,307	51	public	D.O.T.	paved	no	no
Drummondville	10,401	16	public	Mun.	paved	request	for tourists
Grantham	2,190	6	public	private	gravel and turf	request	for tourists
Granby	200	4	public	private	gravel	request	yes
Granby Quest	50	1	private	private	sand	no	no
Joliette	3,285	9	private	private	gravel	no	no
Lachute	100	2	public	private	paved	yes	yes
Montreal	167,640	50	public	D.O.T.	paved	yes	yes
St. Antoine	100	2	private	paved	no	no	no
St. Hubert	21,051	49	public	D.O.T.	paved	yes	yes
St. Hyacinthe	11,360	9	public	private	gravel and turf	yes	no
St. Germain	3,650	10	public	private	paved	no	no
St. Jean	14,157	57	public	D.O.T.	paved	yes	for tourists

TWENTY AIRPORTS IN THE MONTREAL AREA

TABLE 1

Airport	Reported Movements	Estimated Movements	Based A/C	License	Ownership	Runway Surface	Lighting	Customs
St. Jean		100	2		private	paved	no	no
St. Jerome	34,521		13	private	private	paved	request	for tourists
St. Therese		5,475	15	private	private	gravel and turf	no	no
Sorel		50	1	private	private	sand	no	no
Sweetsburg		100	2	private	private	paved	yes	no

The three airports surveyed accounted for 83% of the activity and 47% of the total based aircraft.

Fixed base operators were interviewed at these three airports as well as others in the area which were not surveyed.

C. Survey Methods

Terms of reference for the study were very similar to those of the Toronto General Aviation Study (ORD 115), the purpose of the two studies being essentially the same.

Methodology was also similar having been derived from Appendix A of the study of General Aviation at Vancouver. (ORD 106); "Methodology for Conducting a General Aviation Study".

Two distinct surveys were carried out; a survey of commercially licensed aircraft operators, who were interviewed and asked to complete a questionnaire and a survey of disembarking pilots, who were asked to fill out the aircraft arrivals questionnaire. The latter were four day surveys, including a week-end, and were carried out at the aforementioned airports.

The questionnaires are shown in Appendix A. The survey period extended from June 7 to June 15.

Tabulation of the survey results, and reports on the individual airports are found in Appendix B.

Airport	Total Mvts. 1968	No A/C Based	Sample Size	% Training	% Pleasure	% Business	Training	Pleasure	% Itin.	A/C IFR	Inst. Rated Equipped Pilots
Cartierville	312,347	51	137	34%	45%	8%	96%	97%	13%	21%	
Montreal International	167,640	50	142	2%	17%	63%	100%	25%	76%	77%	68%
St. Hubert	20,341	49	220	78%	16%	4%	96%	60%	15%	14%	30%
TOTAL	500,328	150	499	45%	24%	22%	96%	71%	32%	31%	38%

TABLE 2
Airports Surveyed in Montreal Area

SOURCES OF DATA AND BIBLIOGRAPHY

Aircraft Movement Statistics, Airports with Air Traffic Control Towers.

Aviation Statistics Centre,
Ottawa.

Aircraft Movement Statistics, Airports without DOT Towers.

Aviation Statistics Centre,
Ottawa.

Canada Air Pilot - East Volume

Directory of Canadian Commercial Air Services,
Canadian Transport Commission

Air Transport Committee

Montreal Task Force - Data from Unpublished Report.

ORD 106 - A Study of G.A. at Vancouver

Civil Aviation, CRP,
November, 1967.

ORD 115 - A Study of G.A. in the Toronto Area

Civil Aviation, CAPR,
December 1968.

PRESENT TYPE OF ACTIVITY

From the survey of arriving pilots, the types of use of general aviation aircraft were determined. At the three airports studied it was found that training accounted for 56.7% of the activity, St. Hubert with ab initio training and Cartierville with only licensed pilot training accounting for 98.9% of this.

Business flying was 22.2% of the activity at the three airports, and over 80% of the business flights landed at Montreal International. Montreal also handled more than one-half of the 7% itinerant pleasure flights. At Montreal International there was no activity that remained within tower control for the entire flight but at St. Hubert 15% of the activity did not leave the circuit and at Cartierville, 23.9%.

The two training airports accounted for half of the instrument rated pilot landings, and 30% of the I.F.R. equipped aircraft landings. Thus Montreal, with its greater number of itinerant flights, had 50% of the instrument rated pilot landings and 70% of the I.F.R. equipped aircraft arrivals. The percentage of instrument rated pilot landings at the training airports is misleadingly high due to the repeated landings of instrument endorsed instructors.

At the three surveyed airports, 77% of the arrivals gave home base as a reason for landing. The based arrivals increased to 93% when only Cartierville and St. Hubert were considered.

PRESENT LEVEL OF ACTIVITY

Total general aviation movements in the Montreal area in 1968 were estimated to be slightly over 600,000. Figures for annual movements at the individual airports originated from various sources, since they are recorded only at the larger airports.

Eight of the twenty airports reported 1968 movements. Of these, three were tower reports, and thus of greater reliability than the estimates of weekly movements sent in by the five airports without towers.

Movements at the remaining twelve non-reporting airports were estimated on the basis of number of based aircraft. This was accomplished with a factor giving expected aircraft utilization in movements per week-day and per weekend-day, assuming winter activity to be half that of the summer.

The figures are tabulated below.

	313,000	Cartierville
	168,000	Montreal International
	<u>21,000</u>	St. Hubert
Airports with DOT towers	502,000	
Airports without towers	82,000	
Non-reporting airports (estimated)	<u>16,000</u>	
	TOTAL	600,000

Since the estimated movements at the twelve non-reporting airports are less than 3% of the reported movements, even a fairly large error of estimation will not significantly affect the total.

The only scheduled commercial movements in the Montreal area occur at Montreal International airport, where in 1968 the figure was approximately 90,000.

Hence general aviation includes 87% of the total area activity.

GENERAL AVIATION MOVEMENTS FORECAST
MONTREAL AREA

1. General Methodology

Prior to 1967, historical data of general aviation activity is available for only two airports in the Montreal area - Montreal International and Cartierville.

As a first approach, results from these two airports were combined to evaluate an area growth factor. Various models were run on a computer. The best fit was found to be a linear growth over time and linear growth of an economic indicator (Canadian GNP). This would suggest that these airports should be examined separately. Since both the types of aircraft, and their use, differ greatly from Dorval to Cartierville, this would seem to be a reasonable approach.

For forecasting purposes, the airports in the Montreal area were classified into three groups. Montreal was examined by itself since its G.A. characteristics would imply little or no interaction with the other airports. St. Hubert and Cartierville airports were grouped together since many of the operations at Cartierville are moving to St. Hubert and historical data is available for Cartierville. The other airports in the study were treated separately as they had very little historical data and forecasts would, therefore, be very approximate. No other forecast of individual airports was made as there was no way to predict the growth patterns. Finally, forecasts of these groups were added to provide an area forecast.

For forecast results see Table 3.

2. Forecast General Aviation Movements at Montreal International

To forecast G.A. itinerant movements at Montreal International, a model, based on linear growth over time and Canadian GNP, was used. This seemed reasonable as most of the G.A. itinerant flights were business flights (77% of the itinerant arrivals in this survey). The model was found

to have a good fit with historical data. The forecast, using this model, combines a linear trend over time with GNP, (which is growing exponentially over time). While there is not a constant rate of growth per year, the average rate of growth over the forecast years is 8% per year.

Local movements, in general, are more difficult to forecast since they depend on many variables which are difficult to predict. A straight line trend over time was found to be the best fit. In the forecast, the average growth rate per year was 4%.

Itinerant and local movements were added to give total movements and an average growth rate of 6% per year over the forecast years.

3. Forecast of G.A. Movements at St. Hubert and Cartierville

Historical data for this combined category was taken from Cartierville airport. St. Hubert reported movement figures during summer 1967 and began reporting regularly in November 1968.

Itinerant movements were found to fit an exponential model very well, which reflected the large growth rate in recent years. A forecast based on the model was made with a reduction in growth rate during the last years of the forecast period.

Local movements were again found to be somewhat unpredictable but a trend forecast which averaged 5% per year was made.

As before, totals were obtained and gave an average yearly growth of 7%.

4. Forecast of Movements in the Smaller Airports

As no historical data is available only approximate forecasts can be made and only on an area basis. Using results from other studies (KPM and ORD 115) as well as the composite area forecast mentioned in part 1, an 8% per year growth rate in total general aviation movements

was assumed. Furthermore, it was assumed that local movements comprise 90% of the total movements at these airports. From these assumptions, forecasts were made.

5. Area Forecast

Totals were obtained for total, itinerant and local movements to give an area forecast. The average growth rate per year for total movements in the Montreal area was found to be 7.7%, for itinerant movements 10.5% and for local movements 6.5%.

6. Comments and Assumptions

It should be emphasized that forecasts of local movements are trend forecasts only and should not be expected to be accurate for any given year.

Also, it should be noted that most of the forecasts are linear so that a constant per cent increase per year will not fit the results. The percentage given is only an average.

Simulated approaches were not forecast as no trend was apparent over the last ten years.

The forecasts assume continuing established trends. Radical policy changes with respect to general aviation, a change in the economy of the region, or a change in the flying enthusiasm of the people could all seriously affect the future of general aviation in the area.

MONTRÉAL AREA GENERAL AVIATION MOVEMENTS* FORECAST

Year	Area (Total)		Montreal Intl.		St. Hubert & Cartierville		Others (000)	
	(000)		(000)		(000)		(000)	
	Total	It.	Total	Local	Total	It.	Total	It.
1968	607	159	448	147	51	96	331	94
1971	743	217	526	175	67	108	406	132
1976	1,096	359	737	226	95	131	635	237
Approx. Growth Rate Per Year 1968-1976	7.7%	10.5%	6.5%	6%	8%	4%	8.5%	12%
							5%	5%
							8%	10%
							7.5%	7.5%

*Simulated Approaches are not included

FUTURE GENERAL AVIATION REQUIREMENTS
IN THE MONTREAL AREA

It is generally agreed that any plan for development of general aviation facilities should be a regional plan, based upon the system of interacting airports in the area under consideration.

The premise of the preceding statement has also been well established. An airport is not an independent entity, but its activity is strongly affected by developments at other airports in the same region.

Also, maximum efficiency is obtained by using specialized facilities solely for the purpose for which they were designed.

Thus, a system of classifying airports by type of use will encourage optimum use of facilities and enable the system to handle total traffic more efficiently.

A convenient and reasonable categorization for airports has been developed.

- 1) Air carrier operation
- 2) General aviation itinerant
- 3) General aviation training

An outline of the type of activity which would be encouraged at each airport so categorized is as follows:

An air carrier airport is an airport where the prime users will be scheduled air carriers including both passenger and cargo traffic. Subsidiary traffic such as large aircraft charter flights and air taxi type flights, would also be given access to the airport on a continuing basis. Some general aviation corporate operators, whose aircraft are compatible with those of the prime users, would be allowed under circumstances where no reasonable alternative airport is available.

A general aviation itinerant airport is an airport whose prime users would be business/corporate operators. Other general aviation operations such as aerial work, small aircraft charters and pleasure itinerant would also be encouraged to operate from the airport. Only a minor amount, if any ab initio training should be encouraged.

A general aviation training airport would be an airport whose prime users would be training schools, clubs, and private aircraft owners whose operations would be mainly training, pleasure and private business flying.

Six of the airports in the Montreal area, Cartierville, Montreal International, St. Hubert, St. Jean, St. Jerome, and St. Therese, are the base for 93% of the regional activity.

The movements at the three airports surveyed accounted for 83% of the traffic in 1968.

We can assume that these are the airports which will receive most of the traffic in the future.

St. Hubert falls easily into the category of training airport, as does Cartierville, in spite of the fact that it no longer handles any ab initio training.

Montreal International is of course classified as an air carrier airport, however the pattern of its general aviation activity exactly fits the category "general aviation itinerant". Thus these two functions are both filled by the same airport, and only by this airport.

The activity at St. Jerome and St. Therese is training for the most part, and the bulk of the movements at St. Jean occur during the summer months with the presence of the air cadets from the military college in St. Jean.

As mentioned above, general aviation activity is concentrated at the three major airports, Montreal International, Cartierville, and St. Hubert.

Montreal International (Dorval)

This airport is now the only air carrier airport; it also supports the majority of the general aviation itinerant traffic. This traffic is made up of air taxi type, and business aircraft.

The greater part of the traffic is light twin engine piston aircraft and business jet type aircraft. There are also three helicopter operators, however, the majority of their operations are from other airports than Montreal.

The facilities available are adequate to meet the requirements of all general aviation activities now and the foreseeable future.

St. Hubert

This airport is supporting the majority of the flying training activity in the Montreal area. The three main operators now locating at St. Hubert flew a total 44,707 hours in 1968.

At present, two of the operators still have their operations split between St. Hubert and Cartierville. When they have moved completely, there will be five operators with eighty-one aircraft operating out of the one hangar.

As well as this obvious congestion, the operators were critical of transportation facilities to and from the city. The only connection with the Longueuil metro station is a bus which runs four times daily.

In addition to the general aviation local training traffic, the airport is used extensively by Armed Forces Buffalo aircraft doing pilot training, airlines conducting pilot training, and itinerant general aviation traffic. The operators expressed concern about the fact that ab initio students had to share the circuit with military and airline aircraft.

The proposed parallel to runway 06-24 will alleviate some of the traffic mix problems. The proposed general aviation building area is to the south of this runway. In this area it is proposed to make land available this year for the operators to construct hangar and office facilities.

The air traffic control, navigation aids (which include I.L.S.), the aircraft servicing facilities, aviation weather office, and customs, are adequate to meet the requirements for the immediate future. However, developments must be monitored to identify further requirements.

Cartierville

The two general aviation operators now operating from Cartierville also have operations at St. Hubert, and will move there when adequate facilities are available to contain their entire operation. They appear to be moving with reluctance because their present locations are readily accessible to their market, by whom the operators are identified with their facilities. As this airport will have no general aviation activity in the near future, no facilities will be required.

St. Jerome

This airport is owned and operated by St. Marie Air Services. They are the only commercial operator using the airport. Their operation consists of flying training, some charter flights, plus aircraft maintenance and overhaul work. Although the Montreal and Laurentian areas are the main sources of business, there is a fair amount of American tourist activity.

An air traffic control tower for this airport is included in the Quebec Regional Program for 1971-72. At present there appears to be a requirement for a meteorological teletype service to provide weather information for itinerant traffic. In 1968, there were over five thousand itinerant movements at this airport.

Although customs are available, both flight planning and weather information are handled through Montreal International.

St. Therese

Local training comprises most of the activity at St. Therese. The only operator owns and operates the airport. His flying club operates three aircraft and about fifteen others use the airport.

They have unicom; flight planning and weather information are handled at Montreal, and customs clearance is obtained at St. Jean when it is required.

St. Jean

The tower at St. Jean has been in operation since May 31, 1969, from 8:00 a.m. to one hour after sunset. Traffic is said to have picked up considerably since this date. There is a good deal of capacity to handle growth here, but the problem is a version of the one at St. Hubert, inaccessibility to Montreal, made more acute by distance.

AVIATION FACILITIES

Airport	Tower	Met.	Radio Aids	Customs	Lighting	Remarks
St. Hubert	yes	yes	NDB, TACAN, ILS	Avail Tourists	yes	
Cartierville	yes	---	---	---	---	in evening to be clos but no to G.A. night flying 1970
Montreal Intl	yes	yes	ALL	yes	yes	
St. Jean	yes (in summer months)	---	VORTAC	Avail Tourists	continuous	
St. Jerome	---	---	UNICOM	Avail Tourists	flares on request	tower programmed 71 - 72
St. Therese	---	---	UNICOM	---	---	

CONCLUSIONS

1. The level of general aviation activity per capita in the Montreal area in 1968, was less than half that in Toronto or Vancouver.
2. In both the Vancouver and Montreal areas, general aviation activity is concentrated at a small number of government operated airports, which differs from the Toronto area where traffic is spread over a greater number of airports, most of which are privately operated.
3. The general activity at Montreal International is mainly business and pleasure flights. Most of this traffic is to or from points outside the Montreal area. At Cartierville and St. Hubert the activity is largely training and pleasure, and generally remains within the Montreal area.
4. When the growth of tourist traffic and eventual overflow of itinerant activity at Montreal International Airport demand attention, both St. Jerome and St. Hubert present possible areas of development of itinerant-type airports. Nearby airports in each area, (St. Therese, Beloeil, or St. Jean) have the potential to handle the displaced training activity.

RECOMMENDATIONS

1. General aviation is adequately handled at Montreal International Airport, and facilities are sufficient for the short run.
2. Growth of training activity at St. Hubert is presently being accompanied by growth of facilities. To continue this, encouragement should be given to present plans for development at St. Hubert, including perhaps, provision of facilities for business jet servicing.
3. Studies should be made into the requirements for further general aviation facilities at St. Jerome; such as weather teletype, and direct line for flight planning.
4. Developments in the area should be monitored to determine the longer range effects of the closing of Cartierville airport.

APPENDIX A

SURVEY FORMS

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General Aviation Survey	
Aircraft Operators Questionnaire	A2

GENERAL AVIATION SURVEY - AIRCRAFT MOVEMENTS

SITE	DATE	VFR
		WEATHER IFR

TIME	AIRCRAFT REGISTRATION
------	-----------------------

1. WHAT TYPE OF AIRCRAFT IS THIS? _____
2. HOW MANY PASSENGER SEATS DOES IT HAVE? _____
3. HOW MANY PASSENGERS DID YOU HAVE? _____
4. IS THE AIRCRAFT IFR EQUIPPED? YES _____ NO _____
5. DOES THE PILOT HAVE AN INSTRUMENT RATING? YES _____ NO _____
6. WHERE IS THE AIRCRAFT'S HOME BASE? _____
7. WHERE DID THIS FLIGHT ORIGINATE? _____
8. WHAT WAS THE REASON FOR THIS FLIGHT?
 - a) Business 1. Corporate _____
 2. Private _____
 3. Government _____
 - b) Pleasure _____
 - c) Training _____
 - d) Aerial work _____
 - e) Ferry _____
 - f) Test Flight _____
 - g) Other _____
9. WHY DID YOU CHOOSE THIS AIRPORT?
 - (a) Close to town _____
 - (b) Meet scheduled airline _____
 - (c) Aircraft refueling or servicing _____
 - (d) Weather _____
 - (e) Other _____
10. DO YOU REQUIRE CUSTOMS? YES _____ NO _____
11. DO YOU REQUIRE FUEL _____ TIE DOWN _____ HANGAR SPACE _____
OTHER SERVICING _____
12. ANTICIPATED LENGTH OF STAY _____

GENERAL AVIATION SURVEY
OPERATORS QUESTIONNAIRE

COMPANY NAME _____

AIRPORT _____

1. HOW LONG HAS YOUR OPERATION BEEN AT THIS AIRPORT? _____

2. WHAT TYPE(S) OF OPERATION DO YOU CONDUCT?

(a) CLASSES: _____

(b) IFR _____

(c) VFR _____

3. WHAT NUMBERS AND TYPES OF AIRCRAFT DOES YOUR
ORGANIZATION OPERATE?

Type of Aircraft	Wheels	Floats	Amph.
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

4. (a) WHAT PERCENTAGE OF YOUR AIRCRAFT ARE BASED HERE? _____
(b) APPROXIMATELY WHAT PERCENTAGE OF THESE ARE
TEMPORARILY BASED AT OTHER AERODROMES THROUGHOUT
THE YEAR? _____

5. WHAT IS YOUR AREA OF OPERATIONS FROM THIS BASE (PERCENTAGE)?

0 - 100 miles _____

100 - 500 miles _____

Over 500 miles _____

6. HOW MANY PILOTS DID YOU EMPLOY FULL TIME LAST YEAR? _____

5 years ago _____

10 years ago _____

7. WHAT WAS YOUR TOTAL NUMBER OF FULL TIME EMPLOYEES
LAST YEAR? _____

5 years ago _____

10 years ago _____

8. (a) NUMBER OF PASSENGERS _____

(b) TOTAL ANNUAL HOURS _____

9. ARE THE FOLLOWING ADEQUATE FOR YOUR PRESENT REQUIREMENTS?

LOCATION (ON THE AIRPORT) _____

SIZE (AREA) _____

OUTSIDE TIE-DOWN SPACE _____

AIRPORT FACILITIES _____

10. WHAT DO YOU ANTICIPATE YOUR REQUIREMENTS TO BE IN
FIVE YEARS?

LOCATION (ON THE AIRPORT) _____

SIZE (AREA) _____

OUTSIDE TIE-DOWN SPACE _____

AIRPORT FACILITIES _____

PERSONNEL - Total _____

Pilots _____

Aircraft -

Comments -

11. WHAT AIRCRAFT DO YOU HAVE ON ORDER?

12. WHERE DOES MOST OF YOUR BUSINESS ORIGINATE?

13. WHERE AND HOW DO YOU OBTAIN WEATHER INFORMATION?

14. WHERE AND HOW DO YOU FLIGHT PLAN?

15. WHERE DO YOU OBTAIN CUSTOMS CLEARANCE WHEN REQUIRED?

RESULTS OF SURVEYS AT THREE MONTREAL AREA AIRPORTS

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RESULTS OF AIRCRAFT ARRIVALS SURVEY

		CLASSIFICATION OF ARRIVALS						ITINERANT ARRIVALS		
TOTAL		USE OF AIRCRAFT			OTHER			ITINERANT ARRIVALS		
		TRAINING	PLEASURE	BUSINESS						
137		47	34%	62	45%	11	8%	17	13%	18
I.F.R. Equipped Aircraft										
Instrument Rated Pilots	18	13%	3	6%	8	13%	2	18%	5	29%
Local	29	21%	7	15%	8	13%	6	55%	8	47%
Itinerant	119	87%	45	96%	60	97%	1	9%	13	76%
Reason for Choosing Airport:	18	13%	2	4%	2	3%	10	91%	4	24%
Close to Town (a)										
Refuelling and/or Service (c)	2	2%					2	18%	2	11%
Other (e)	6	4%								
Based (f)	129	94%	47	100%	62	100%	6	55%	14	82%
									11	61%

CARTIERVILLE AIRPORT

Cartierville airport is located at latitude 45° 31'N and longitude 73° 43'W about four miles north of Montreal International Airport. Owned and operated by the Department of Transport, it is operated under a public license.

FACILITIES

For general aviation, the fixed base operators offer fuel, 80/87, 100/130, and jet fuel, seasonal grades of oil, a public telephone, storage, and major and minor repairs to Cessna and Piper aircraft. A direct line to the Cartierville tower for flight planning is available. Customs cannot be obtained.

The airport has a tower open from 1200Z to one-half hour after sunset from April 27 to October 26, and from 1300Z to one-half hour after sunset from October 27 to April 26. The airport is closed when the tower is not in operation.

The two runways are paved. There are obstruction lights along the highway approach to runway 24, and an arresting gear on runways 10 and 28, available on seven days notice. Both runways are lighted in the evening until one-half hour after sunset when the airport closes.

Runways:	10 - 28	8792' x 150'
	06 - 24	3750' x 100'

GENERAL AVIATION ACTIVITYA. TYPE

Of the aircraft arriving during the four day survey, training and pleasure, 34% and 45% respectively, made up 79% of the mix; business flights made up 8% and the remaining 11% were for purposes such as test flights and aircraft demonstrations.

Only 6% of the arrivals were not based at Cartierville.

Itinerant flights accounted for 13% of the general aviation activity. Over half of these were business flights, and nearly two-thirds of the itinerant chose Cartierville because they were based there. The reason given by the remainder was generally business with the operators on the site.

Of the incoming aircraft, 13% were I.F.R. equipped, and of this almost half were pleasure and only one-quarter was itinerant. Of the arriving pilots, 21% held an instrument rating, and only 20% of these were itinerant.

The population consists mainly of single engine Cessna and Piper aircraft, with a few other single engine and light twins.

B. LEVEL

A sample of 137 aircraft arrivals was obtained during the four day survey.

There were 313,807 reported movements at Cartierville in 1968, of which 91,339 were itinerant. The number of based airplanes was fifty-one.

Cartierville has been the major training center in the Montreal area, having ranked as the busiest airport in Canada since 1962. It has also reported the fifth greatest number of itinerant movements for the past three years.

However, the course of general aviation at Cartierville has now been changed, due to its proximity to Montreal International Airport. To prevent interference between the two airports, "ab initio" training was banned within a ten mile radius of Cartierville, leaving only licensed pilot training, pleasure, and some business flying. As a result, two of the three large flying schools have transferred a portion of their operations to St. Hubert, and the third has moved completely. Activity has decreased, from 25,219 in November 1967, to 16,168 in November 1968, a 35.9% drop in total aircraft movements.

There are two operators at Cartierville conducting IFR and VFR, 4BC, 9-4, 7RF, 7FT, 7AP, 7AIRA, 4C, TAPS and 7AAD operations. They operated 51 small aircraft, three of which are twin. For two months of the year 1/5 of these are temporarily based in the Maritimes and in 1969 some planes had their base moved to St. Hubert. At present five planes are on order.

About 90% of their operations are within 100 miles of the airport, and charters within 500 miles make up the remaining 10%. Together, they employ 74 full time employees, 27 of whom are pilots. With most of their business coming from Metropolitan Montreal, in 1968 these operators carried 552 passengers and logged 35,036 hours.

Flight plans are filed on a direct line to Cartierville tower and weather information is obtained by radio from Montreal tower. Neither operator complains about having to use Montreal or St. Hubert for customs. Both operators find Cartierville's location, facilities and outside tiedown space adequate, expansion of course has now been curtailed.

RESULTS OF AIRCRAFT ARRIVALS SURVEY

CLASSIFICATION OF ARRIVALS

TOTAL	USE OF AIRCRAFT				ITINERANT ARRIVALS	
	TRAINING	PLEASURE	BUSINESS	OTHER		
142	3	2%	24	17%	90	63%
					25	18%
					108	76%
I.F.R. Equipped Aircraft						
109	77%	1	33%	15	63%	76
					84%	17
Instrument Rated Pilots						
96	68%	1	33%	9	38%	68
					74%	18
Local						
34	24%	3	6	6	25%	7
					8%	18
Itinerant						
108	76%		18	75%	83	92%
					75%	7
Reason for Choosing Airport:						
Close to Town (a)						
34	24%	1	33%	4	16%	28
					31%	1
Refuelling and/or Service (c)						
21	15%				8%	14
					15%	5
Other (e)						
38	27%				9	38%
					25	28%
Based (f)						
49	34%	2	60%	9	38%	23
					26%	15
					60%	15
					60%	21
						21
						17%

MONTREAL INTERNATIONAL AIRPORT

Montreal International Airport is situated at latitude $45^{\circ}28'N$ and longitude $73^{\circ}45'W$ in the City of Dorval between the Trans Canada Highway and Cote-de-Liesse. It is owned and operated by the Department of Transport under a public licence.

FACILITIES

The airport has a tower and a full range of navigation aids e.g., NDB, VASIS, VOR and AASR and landing aids, e.g., VASIS and ILS on runways 10, 24R and 06L. The three runways are fully lighted and paved (either asphalt or concrete) having the following dimensions.

06R - 24L	9600' x 200'
06L - 24R	11000' x 200'
10 - 28	7000' x 200'

There is a large terminal building, an aeroquay and two general aviation areas which are able to handle all types of aircraft. Complete servicing is provided on a 24 hour basis with all seasonal grades of oil available as well as JP1, JP4 and fuel of all octane ratings. There is hangar storage and ramp tie down space, low and high pressure oxygen servicing, de-icing equipment electric and air starters and facilities for major and minor repairs.

In an attempt to control noise level at night, the use of the airport by turbo-jet aircraft is not permitted from 2300 to 0700 except in the case of scheduled turbo-jet which are permitted to operate until midnight.

GENERAL AVIATION

General aviation at Montreal International Airport operates from two locations which are at opposite ends of the field. The older area, which has direct access to Rue Cardinal, is adjacent to the western end of the main terminal building. The majority of the aircraft using this area are single and light to medium twin engined aircraft as well as the occasional small business jet.

The second general aviation area which has road access to Cote-de-Liesse, was opened late in 1968 and is situated at the north end of runway 06R-24L. To taxi to the new area, aircraft must use taxiway A and cross runway 06R-24L; during peak traffic periods delays occur while arriving at and departing from the ramp area because of the difficulty in obtaining a clearance to cross the live runway.

In both areas direct telephone lines to the tower are provided for flight planning and teletypes supply continuous weather information. At the new area a customs officer is on duty from 0800 hrs to 2245 hrs while customs is obtained at the older area in the terminal building on a 24 hour basis.

TYPE OF ACTIVITY

During the four day study period at Montreal International Airport a survey of 142 arriving pilots indicated that 63% (90) of the general aviation aircraft were engaged in business flying. On each of the four days business aviation accounted for the greatest number of flights; on three days it accounted for more than half the flights surveyed.

Pleasure flights and a general category which included aerial work, ferry flights and test flights generated 17% (24) and 18% (25) of the arrivals respectively. The pleasure flights peaked on Saturday with 11 and declined steadily to 3 on Tuesday, while flights in the general category register twice as many operations during the week (Monday and Tuesday) as they did on the weekend.

Training was negligible accounting for only 2% of the general aviation traffic. Air carrier training is not included in this figure.

Because of the high proportion of business flights, 76% (108) of the traffic at the airport was itinerant. Of these arrivals, 84% (91) of the aircraft were instrument equipped, and 70% (76) of the pilots held instrument endorsements.

24% (34) of the pilots gave proximity to town as the main reason for landing at the airport, 15% (21) said refueling and servicing, while 27% (38) had other reasons, the most common of which was picking up and dropping off passengers. 34% (49) of the aircraft were based, and only 17% (21) of the itinerant listed based as the reason for landing at Montreal International Airport.

LEVEL OF ACTIVITY

Montreal International Airport being a mainline airport for scheduled air carriers has ranked second or third in total aircraft movements for the past decade. In 1968 a total of 256,803 movements were recorded, 167,639 being general aviation.

There are 50 general aviation aircraft based at the airport half of which are corporate aircraft in the twin-engined and small jet class.

During the survey the general aviation increased on Monday and Tuesday to 82 arrivals over 60 recorded on the weekend; because of the greater number of business flights during the week.

On a daily basis the activity generally built up to a peak late in the afternoon (1600 - 1700 hrs) with a minor peak occurring about mid morning (1000 - 1100 hrs).

OPERATORS

At Montreal International Airport there are 6 fixed base operators, 3 charter operators with 4AB, 9-4 7RF and 4B licences and 3 helicopter operators with 7FT, 7RF, 7AP, 7APS, 7AAD, 7AIRA, 7AC, 4BC and 9-4 licences. They operate 21 helicopter and 18 fixed wing aircraft which includes 12 twin engined and 3 jet aircraft. The charter operators all operated in a radius of over 500 miles, while the helicopters rarely flew over 500 miles from base with half of the operations less than 100 miles. Most of the business for both charter and helicopter operators originated in the Montreal area.

34 of the 99 employees were pilots who flew 2550 hours and 1306 passengers by fixed wing aircraft, and 4852 hours and 68448 passengers by helicopter. The large number of passengers flown by helicopter is explained by charter flights to "Terres des Hommes".

All the operators got their weather information, flight planning and customs at the airport. The facilities were found to be adequate, but for future requirements some operators have planned to build, or are building, new hangars. One helicopter operator is planning to move to a downtown location.

RESULTS OF AIRCRAFT ARRIVALS SURVEY

CLASSIFICATION OF ARRIVALS

TOTAL	USE OF AIRCRAFT				ITINERANT ARRIVALS
	TRAINING	PLEASURE	BUSINESS	OTHER	
220	171	78%	35	16%	10
				4%	4
				2%	2
				34	34
					15%
I.F.R. Equipped Aircraft					
30	14%	14	8%	14	40%
Instrument Rated Pilots					
65	30%	59	35%	3	8%
Local					
186	85%	165	96%	20	60%
Itinerant					
34	15%	6	4%	15	40%
Reason for Choosing Airport:					
Close to Town (a)					
3	1%			1	3%
Refuelling and/or Service (c)					
2	1%				1
Other (e)					
11	5%	2	1%	5	14%
Based (f)					
204	93%	169	99%	29	83%
				4	40%
				2	50%
				19	56%
					9%
					6%
					29%
					56%
					ST. HUBERT AIRPORT

ST. HUBERT

St. Hubert airport is located at latitude 45°31'N and longitude 73°25'W, approximately ten miles east of Montreal on the south shore of the St. Lawrence River. It is operated by the Department of Transport under a public licence.

FACILITIES

St. Hubert has been in operation since 1930 as a Canadian Forces Base under the Department of National Defence. Thus the terminal facilities include a tower, N.D.B., TACAN, and an ILS on runway 24.

The airport has three asphalt runways of the following directions and dimensions:

10 - 28	3100' x 150'
06 - 24	7840' x 150'
18 - 36	3750' x 150'

Lighting is extensive, including R1 runway lights, blue taxiway and red obstruction lights, and green threshold lights identifying runway 06.

Fuel and oil servicing is available; seasonal grades of oil, and fuel 80/87 100/130 115/145. Also on the field are a telephone, teletype, and a continuous weather forecasting service.

There is a customs port of entry and exit for tourists only. This is available from 1300Z to 2100Z daily and between 2100Z and 0500Z if previous arrangements have been made.

GENERAL AVIATION ACTIVITY

General aviation at St. Hubert operates out of hangar 12 on the north side of runway 24, and is thus separated from the military activity, although they do use the same runways.

TYPE OF ACTIVITY

Each of the three operations at St. Hubert includes a flying school. The obvious conclusion concerning the nature of the traffic was borne out by the survey; 78% of the arrivals interviewed had been doing flying training. Pleasure flights comprised another 16%; these two categories thus accounted for 94% of the activity at the airport. Business flights made up 4% of the traffic; the remaining few were ferry or test flights.

Because of the predominance of training activity, the ratio of itinerant flights to the total was a low 15%. This included all the business traffic, and 40% of the pleasure traffic, whereas only 4% of the training flights were itinerant. Another factor which may be operative here is a general unawareness of the existence of facilities now open to itinerant general aviation.

More than half of the itinerant arrivals landed at St. Hubert because they were based there. Incorporating these with local arrivals, it was found that 93% of the total landed at the airport for that reason. This was true for almost all of the training flights (99%) but for only 40% of the business arrivals.

The percentage of I.F.R. equipped aircraft and instrument rated pilots varies substantially with the use of the aircraft. In the case of those used for pleasure flying, 40% were instrument equipped, while less than 10% of the pilots were instrument rated. In the sample of training arrivals, these figures were almost exactly reversed. Combining the two with the figures from business arrivals, the percentages for the total are; 14% of the aircraft I.F.R. equipped and 30% of the pilots were instrument rated.

LEVEL OF ACTIVITY

There are 49 aircraft based at St. Hubert, most of them belonging to the flying schools. A sample of 220 aircraft arrivals was obtained during the four-day survey. The traffic is much heavier on week-end days, double its level on week-days. Approximately one-third of the total sample arrived on the Saturday of the survey.

As previously mentioned, St. Hubert airport has been operating since 1930. In 1967 it was first opened to civil aviation for a period of six months; May 1 to October 31, the duration of Expo 67.

Following the transfer of the airport from the Department of National Defence to the Department of Transport, civil and commercial operators were encouraged to move from Cartierville to St. Hubert. On November 1, 1968, St. Hubert began reporting civil movements to the Aviation Statistics Centre. General aviation has grown rapidly:

	LOCAL	ITIN	S.A.	TOTAL
1967 (May-Oct)	925	15,404		16,329
1968 (Nov-Dec)	12,668	3,656	725	16,897
1969 (Jan-Feb)	15,053	4,425	573	20,051

In April 1969, St. Hubert ranked eighth in total activity of 40 D.O.T. tower controlled airports.

OPERATORS

At St. Hubert there are 5 operators conducting VFR and IFR, 6, 7FT, 7RF, 7AP, 7APS, 9-4, 4BC, 4C, 7AAD and 7AIRA type operations. The combined total of aircraft owned by the operators is 76, of which 8 are twin engine. The two largest operators still have some of these at Cartierville. Another 11 aircraft are on order. In 1968 there were 99 full time employees of the 5 operators, 37 of whom are pilots. The total flying hours was 48,225 hours and 552 passengers were carried.

All of the operators flight plan in hangar number 12 and also obtain weather information on a teletype there.

The outside tiedown and airport facilities were satisfactory but the operators are looking forward to a new planned parallel runway. The location of the airport for transportation linking to the city leaves much to be desired by the operators. In the future most of the operators have plans to build their own hangars and expect to grow from 25% to 100% in the next five years.

